UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/021,992	12/12/2001	Pankaj K. Jha	0325.00526	7641

21363 7590 10/14/2005

CHRISTOPHER P. MAIORANA, P.C.
24840 HARPER SUITE 100
ST. CLAIR SHORES, MI 48080

EXAMINER	
KHOO, FOONG LIN	
ART UNIT	**PAPER NUMBER**
2664	

DATE MAILED: 10/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/021,992	JHA, PANKAJ K.	
	Examiner	Art Unit	
	F. Lin Khoo	2664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 December 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/13/02*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 15 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The essential subject of the applicant cannot be incorporated by the reference defined by "Request For Comment 3031" as stated in the claim. The scope of the claim as defined by the Request For Comment 3031 is not limiting.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-4, 7-11,14, 16, 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Hama (U.S. Publication No. 2004/0202171).

Regarding Claim 1, Hama discloses a router (edge router in Fig. 9) comprising:
a first port configured to receive a frame having a network layer protocol identification (Fig. 9, element 121; paragraph [0084] , paragraph [0087]. Line card 121 is equivalent to a first port configured to receive a frame (VLAN packet) having a network layer protocol identification. The VLAN packet in Fig. 20 received at line card 121 consist of an IP packet header (element M5) containing information of a network layer protocol identification which is further evidence by Figure 9.9 (the field identifying the Protocol in the IP header) in page 499, Section 9.5.2, of the book by Fred Halsall);
a second port connectable to a Multi-Protocol Label Switching (MPLS) network (Fig. 9, element 128; Fig. 6, element 200; paragraph [0087]. Line card 128 is equivalent to a second port connectable to a Multi-Protocol Label Switching (MPLS) network (element 200); and
a circuit configured to (i) insert an MPLS label into said frame while retaining said network layer protocol identification and (Fig. 9, element 123i; Fig. 17B; paragraph [0084], paragraph [0111]. The subrouter (element 123i) is associated with a circuit configured to insert an MPLS label into said frame while retaining said network layer protocol identification. The MPLS label in Fig.17B is inserted in the frame while retaining the network layer protocol identification in the segment indicated as "IP, TCP, Data,..." which has the IP header (see Fig. 24, element M5; paragraph [0021]). An IP

packet header (element M5) containing information of a network layer protocol identification is further evidence by Figure 9.9 (the field identifying the Protocol in the IP header) in page 499, Section 9.5.2, of the book by Fred Halsall. The insertion of the MPLS label between the layer 2 header and IP header is equivalent to retaining the network layer protocol identification in the IP header). (ii) present said frame in said MPLS network per said MPLS label (Fig. 9, Fig 12; paragraph [0087], paragraph [0092] paragraph [0093]. MPLS packet output from line card 128 is equivalent to frame forwarded into MPLS network per MPLS label).

Regarding Claim 2, Hama discloses wherein said circuit is further configured to: receive a second frame having a second network layer protocol identification (Fig. 9, element 121; paragraph [0084], paragraph [0087]. Line card 121 is equivalent to a first port configured to receive a second frame (VLAN packet) having a second network layer protocol identification. The VLAN packet in Fig. 20 received at line card 121 consist of an IP packet header (element M5) containing information of a network layer protocol identification which is further evidence by Figure 9.9 (the field identifying the Protocol in the IP header) in page 499, Section 9.5.2, of the book by Fred Halsall. Note: The circuit in the edge router is capable of receiving a plurality of frames (packets). A second frame with an IP packet header (element M5) containing information of a second network layer protocol identification is any frame of the plurality of frames received by the circuit in the edge router);

insert said MPLS label into said second frame while retaining said second network layer protocol identification (Fig. 9, element 123i; Fig. 17B; paragraph [0084], paragraph [0111]. The subrouter (element 123i) is associated with a circuit configured to insert an MPLS label into said second frame while retaining said second network layer protocol identification. The MPLS label in Fig.17B is inserted in the second frame while retaining the second network layer protocol identification in the segment indicated as "IP, TCP, Data,..." which has the IP header (see Fig. 24, element M5; paragraph [0021]). An IP packet header (element M5) containing information of a network layer protocol identification is further evidence by Figure 9.9 (the field identifying the Protocol in the IP header) in page 499, Section 9.5.2, of the book by Fred Halsall. The insertion of the MPLS label between the layer 2 header and IP header is equivalent to retaining the second network layer protocol identification in the IP header); and

forward said second frame in said MPLS network in accordance with said MPLS label (Fig. 9, Fig 12; paragraph [0087], paragraph [0092] paragraph [0093]. MPLS packet output from line card 128 is equivalent to second frame forwarded into MPLS network per MPLS label).

Regarding Claim 3, Hama discloses wherein said circuit is further configured to: establish a path through said MPLS network prior to forwarding said frame (paragraph [0086], paragraph [0087]. The MPLS network routing table (forwarding-label memory) 133 stores forwarding labels which specify the route to the receive edge router using the router protocol 132 and this is equivalent to establishing a path through said MPLS

network prior to forwarding said frame); transmit said frame along said path in response to establishing said path (Fig. 22; paragraph [0015], paragraph [0016]); and transmit said second frame along said path in response to establishing said path (Fig. 22; paragraph [0015], paragraph [0016]. Note: The circuit in the edge router is capable of transmitting a plurality of frames (packets). A second frame is any frame of the plurality of frames transmitted by the circuit in the edge router).

Regarding Claim 4, Hama discloses wherein said circuit is further configured to: receive a second frame having a second MPLS label and a second network layer protocol identification (Fig. 9, element 128; paragraph [0088]. The MPLS packet arrives at the target receive-side edge router along the preset route through the MPLS network while its forwarding label is replaced. The line card 128 of the receive-side edge router receives the MPLS packet from the MPLS network 200. The MPLS packet arriving at the target receive-side edge router is equivalent to receiving a second frame having a second MPLS label and a second network layer protocol identification. Note: The circuit in the edge router is capable of receiving a plurality of frames (packets). A second frame with an IP packet header (element M5) containing information of a second network layer protocol identification is any frame of the plurality of frames received by the circuit in the edge router);

remove said second MPLS label from said second frame in response to receiving said second frame (Fig. 9, element 123i; paragraph [0088]. The subrouter 123i removes the forwarding label and refers to the VPN label table 124 to find the VID corresponding to

the VPN label. This is equivalent to removing the second MPLS label from the second frame in response to receiving second frame); and

present said second frame external to said MPLS network in response to removing said second MPLS label (Fig. 9, element 123i, element 121; paragraph [0088]. The subrouter 123i swaps a tag, which contains the VID, for the VPN label to thereby generate a VLAN packet and sends this VLAN packet via the line card 121 to the VLAN indicated by the VID. This is equivalent to presenting the second frame external to said MPLS network (VLAN indicated by the VID) in response to removing second MPLS label).

Regarding Claim 7, Hama discloses wherein the circuit is further configured to: create an MPLS protocol identification field and an MPLS label stack field between a data link layer address field and a network layer protocol identification field in said frame (Fig. 25, element M6, element M7; paragraph [0022]. In Fig. 25, two shim headers M6, M7 are forwarded upon being stacked in one IP frame and they are stacked between elements M1, M2, M4 (M1, M2 and M4 are defined to be layer 2 (data-link layer) address) and M5 (IP packet (IP header, TCP, data....) where the network layer protocol identification field is in the IP header as further evidence by Figure 9.9 (the field identifying the Protocol in the IP header) in page 499, Section 9.5.2, of the book by Fred Halsall); and insert said MPLS label into said MPLS label stack in response to creating (Fig. 25, element M6, element M7; paragraph [0022]).

Regarding Claim 8, Hama discloses a method of operation in a Multi-Protocol Label Switching (MPLS) network comprising the steps of:

(A) receiving a frame having a network layer protocol identification (Fig. 9, element 121; paragraph [0084] , paragraph [0087]. Line card 121 receives a VLAN packet which is equivalent to receiving a frame having a network layer protocol identification. The VLAN packet in Fig. 20 received at line card 121 consist of an IP packet header (element M5) containing information of a network layer protocol identification which is further evidence by Figure 9.9 (the field identifying the Protocol in the IP header) in page 499, Section 9.5.2, of the book by Fred Halsall);

(B) inserting an MPLS label into said frame while retaining said network layer protocol identification (Fig. 9, element 123i; Fig. 17B; paragraph [0084], paragraph [0111]. The subrouter (element 123i) is associated with a circuit configured to insert an MPLS label into said frame while retaining said network layer protocol identification. The MPLS label in Fig.17B is inserted in the frame while retaining the network layer protocol identification in the segment indicated as "IP, TCP, Data,..." which has the IP header (see Fig. 24, element M5; paragraph [0021]). An IP packet header (element M5) containing information of a network layer protocol identification is further evidence by Figure 9.9 (the field identifying the Protocol in the IP header) in page 499, Section 9.5.2, of the book by Fred Halsall. The insertion of the MPLS label between the layer 2 header and IP header is equivalent to retaining the network layer protocol identification in the IP header); and

(C) presenting said frame in said MPLS network per said MPLS label (Fig. 9, Fig. 12; paragraph [0087], paragraph [0092] paragraph [0093]. MPLS packet output from line card 128 is equivalent to presenting frame into MPLS network (Fig. 12, element 200) per MPLS label).

Regarding Claim 9, Hama discloses further comprising the steps of:

receiving a second frame having a second network layer protocol identification (Fig. 9, element 121; paragraph [0084], paragraph [0087]. Line card 121 receives a VLAN packet which is equivalent to receiving a second frame having a second network layer protocol identification. The VLAN packet in Fig. 20 received at line card 121 consist of an IP packet header (element M5) containing information of a network layer protocol identification which is further evidence by Figure 9.9 (the field identifying the Protocol in the IP header) in page 499, Section 9.5.2, of the book by Fred Halsall. Note: The circuit in the edge router is capable of receiving a plurality of frames (packets). A second frame with an IP packet header (element M5) containing information of a second network layer protocol identification is any frame of the plurality of frames received by the circuit in the edge router);

inserting said MPLS label into said second frame while retaining said second network layer protocol identification (Fig. 9, element 123i; Fig. 17B; paragraph [0084], paragraph [0111]. The subrouter (element 123i) is associated with a circuit configured to insert an MPLS label into said second frame while retaining said second network layer protocol identification. The MPLS label in Fig.17B is inserted in the second frame

while retaining the second network layer protocol identification in the segment indicated as "IP, TCP, Data,..." which has the IP header (see Fig. 24, element M5; paragraph [0021]). An IP packet header (element M5) containing information of a network layer protocol identification is further evidence by Figure 9.9 (the field identifying the Protocol in the IP header) in page 499, Section 9.5.2, of the book by Fred Halsall. The insertion of the MPLS label between the layer 2 header and IP header is equivalent to retaining the second network layer protocol identification in the IP header); and

forwarding said second frame in said MPLS network in accordance with said MPLS label (Fig. 9, Fig 12; paragraph [0087], paragraph [0092] paragraph [0093]. MPLS packet output from line card 128 is equivalent to second frame forwarded into MPLS network per MPLS label).

Regarding Claim 10, Hama discloses further comprising the steps of:

establishing a path through said MPLS network prior to forwarding said frame (paragraph [0086], paragraph [0087]. The MPLS network routing table (forwarding-label memory) 133 stores forwarding labels which specify the route to the receive edge router using the router protocol 132 and this is equivalent to establishing a path through said MPLS network prior to forwarding said frame);

transmitting said frame along said path in response to establishing said path (Fig. 22; paragraph [0015], paragraph [0016]); and

transmitting said second frame along said path in response to establishing said path (Fig. 22; paragraph [0015], paragraph [0016]. Note: The edge router is capable of

transmitting a plurality of frames (packets). A second frame is any frame of the plurality of frames transmitted by the edge router).

Regarding Claim 11, Hama discloses further comprising the steps of:

receiving a second frame having a second MPLS label and a second network layer protocol identification (Fig. 9, element 128; paragraph [0088]. The MPLS packet arrives at the target receive-side edge router along the preset route through the MPLS network while its forwarding label is replaced. The line card 128 of the receive-side edge router receives the MPLS packet from the MPLS network 200. The MPLS packet arriving at the target receive-side edge router is equivalent to receiving a second frame having a second MPLS label and a second network layer protocol identification. Note: The circuit in the edge router is capable of receiving a plurality of frames (packets). A second frame with an IP packet header (element M5) containing information of a second network layer protocol identification is any frame of the plurality of frames received by the circuit in the edge router);

removing said second MPLS label from said second frame in response to receiving said frame (Fig. 9, element 123i; paragraph [0088]. The subrouter 123i removes the forwarding label and refers to the VPN label table 124 to find the VID corresponding to the VPN label. This is equivalent to removing the second MPLS label from the second frame in response to receiving second frame);

and presenting said second frame external to said MPLS network in response to removing said second MPLS label (Fig. 9, element 123i, element 121; paragraph

[0088]. The subrouter 123i swaps a tag, which contains the VID, for the VPN label to thereby generate a VLAN packet and sends this VLAN packet via the line card 121 to the VLAN indicated by the VID. This is equivalent to presenting the second frame external to said MPLS network (VLAN indicated by the VID) in response to removing second MPLS label).

Regarding Claim 14, Hama discloses wherein step (B) comprises the sub-steps of: creating an MPLS protocol identification field and an MPLS label stack field between a data link layer address field and a network layer protocol identification field in said frame (Fig. 25, element M6, element M7; paragraph [0022]. In Fig. 25, two shim headers M6, M7 are forwarded upon being stacked in one IP frame and they are stacked between elements M1, M2, M4 (M1, M2 and M4 are defined to be layer 2 (data-link layer) address) and M5 (IP packet (IP header, TCP, data....) where the network layer protocol identification field is in the IP header as further evidence by Figure 9.9 (the field identifying the Protocol in the IP header) in page 499, Section 9.5.2, of the book by Fred Halsall); and inserting said MPLS label into said MPLS label stack in response to creating (Fig. 25, element M6, element M7; paragraph [0022]).

Regarding Claim 16, Hama discloses wherein said steps (A) through (C) are stored in a storage medium as a software program that is readable and executable by a router to insert said frame into said MPLS network (Fig. 9, element 124, element 125, element 133; paragraph [0084], paragraph [0085], paragraph [0086]. Elements 124,

125 and 133 in the edge router are tables inherently stored in a storage medium, read and executed by software program by processor identified as Tag Processor, MPL Label Processor, Processor for Second Layer, Processor for First Layer and Routing Table Processor).

Regarding Claim 17, Hama discloses a router comprising: means for receiving a frame having a network layer protocol identification (Fig. 9, element 121; paragraph [0084], paragraph [0087]. Line card 121 receives a VLAN packet which is equivalent to receiving a frame having a network layer protocol identification. The VLAN packet in Fig. 20 received at line card 121 consist of an IP packet header (element M5) containing information of a network layer protocol identification which is further evidence by Figure 9.9 (the field identifying the Protocol in the IP header) in page 499, Section 9.5.2, of the book by Fred Halsall); means for inserting a Multi-Protocol Label Switching (MPLS) label into said frame while retaining said network layer protocol identification (Fig. 9, element 123i; Fig. 17B; paragraph [0084], paragraph [0111]. The subrouter (element 123i) is associated with a circuit configured to insert an MPLS label into said frame while retaining said network layer protocol identification. The MPLS label in Fig.17B is inserted in the frame while retaining the network layer protocol identification in the segment indicated as "IP, TCP, Data,..." which has the IP header (see Fig. 24, element M5; paragraph [0021]). An IP packet header (element M5) containing information of a network layer protocol identification is further evidence by Figure 9.9 (the field identifying the Protocol in the IP header) in page 499, Section 9.5.2, of the book by Fred

Halsall. The insertion of the MPLS label between the layer 2 header and IP header is equivalent to retaining the network layer protocol identification in the IP header); and means for forwarding said frame in an MPLS network per said MPLS label (Fig. 9, Fig. 12; paragraph [0087], paragraph [0092] paragraph [0093]. MPLS packet output from line card 128 is equivalent to forwarding frame into MPLS network (Fig. 12, element 200) per MPLS label).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 5, 6, 12, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hama (U.S. Publication No. 2004/0202171) in view of Civanlar et al. (U.S. Publication No. 2004/0213221).

Regarding Claim 5, Hama discloses edge routers used in an MPLS network with MPLS label retaining network layer protocol for routing packets. Hama does not disclose wherein said circuit is further configured to: establish a traffic-engineered path through said MPLS network; and transmit a plurality of frames having a plurality of

protocol through said traffic-engineered path in response to establishing said traffic-engineered path. Civanlar et al. in the same field of endeavor discloses wherein said circuit is further configured to: establish a traffic-engineered path through said MPLS network (Fig. 1A, element 24; paragraph [0036], paragraph [0037]. The exchange router (element 24) is associated with a circuit configured to establish a traffic-engineered path through MPLS network. The MPLS tunnel's route information can be "pushed" into ingress exchange router 24a, which in turn establishes an MPLS tunnel 22 across the Fiber-optic IP backbone 10 (FIG. 1A) by using MPLS signaling protocols such as Resource ReserVation Setup Protocol (RSVP), for example. RSVP is an Internet protocol developed to enable the Internet to support specified qualities of service. Using RSVP, an application can reserve resources along a route from source to destination. The MPLS tunnel using RSVP is associated with a traffic-engineered path through MPLS network); and transmit a plurality of frames having a plurality of protocol through said traffic-engineered path in response to establishing said traffic-engineered path (Fig. 1A, element 24; paragraph [0032] paragraph [0036], paragraph [0037]. The exchange router (element 24) is associated with transmitting plurality of frames with MPLS labels including IP header fields with protocol ID identifying a plurality of protocol through traffic-engineered path in response to establishing said traffic-engineered path). At the time the invention was made it would have been obvious to a person of ordinary skill in the art to incorporate the MPLS tunnel using MPLS signaling protocols such as Resource ReserVation Setup Protocol (RSVP) as taught by Civanlar et al. into the router of Hama for establishing a virtual backbone tunnel coupled with an existing

network infrastructure by receiving a request for a soft bandwidth service, the request indicating particular soft bandwidth attribute information, determining soft bandwidth availability within the network, determining an explicit soft bandwidth traffic path within the network, informing particular components of the network infrastructure of the soft bandwidth traffic path information, signaling the network to establish a virtual backbone tunnel between predetermined points in the existing network infrastructure indicated by the soft bandwidth traffic path information, and transmitting soft bandwidth data traffic relating to the requested soft bandwidth service across the virtual backbone tunnel (paragraph [0016]).

Regarding Claim 6, Hama discloses edge routers used in an MPLS network with MPLS label retaining network layer protocol for routing packets. Hama does not disclose wherein said transmission through said traffic-engineered path is bidirectional. Civanlar et al. in the same field of endeavor discloses wherein said transmission through said traffic-engineered path is bidirectional ([paragraph [0055]). At the time the invention was made it would have been obvious to a person of ordinary skill in the art to implement MPLS tables for MPLS tunnels applicable for both directions as taught by Civanlar et al. into the router of Hama to establish a virtual backbone tunnel coupled with an existing network infrastructure by receiving a request for a soft bandwidth service, the request indicating particular soft bandwidth attribute information, determining soft bandwidth availability within the network, determining an explicit soft bandwidth traffic path within the network, informing particular components of the

network infrastructure of the soft bandwidth traffic path information, signaling the network to establish a virtual backbone tunnel between predetermined points in the existing network infrastructure indicated by the soft bandwidth traffic path information, and transmitting soft bandwidth data traffic relating to the requested soft bandwidth service across the virtual backbone tunnel (paragraph [0016]).

Regarding Claim 12, Hama discloses edge routers used in an MPLS network with MPLS label retaining network layer protocol for routing packets. Hama does not disclose the steps of: establishing a traffic-engineered path through said MPLS network; and transmitting a plurality of frames having a plurality of protocol through said traffic engineered path in response to establishing said traffic-engineered path. Civanlar et al. in the same field of endeavor discloses the steps of: establishing a traffic-engineered path through said MPLS network (Fig. 1A, element 24; paragraph [0036], paragraph [0037]. The exchange router (element 24) is associated with a circuit configured to establish a traffic-engineered path through MPLS network. The MPLS tunnel's route information can be "pushed" into ingress exchange router 24a, which in turn establishes an MPLS tunnel 22 across the Fiber-optic IP backbone 10 (FIG. 1A) by using MPLS signaling protocols such as Resource ReserVation Setup Protocol (RSVP), for example. RSVP is an Internet protocol developed to enable the Internet to support specified qualities of service. Using RSVP, an application can reserve resources along a route from source to destination. The MPLS tunnel using RSVP is associated with a traffic-engineered path through MPLS network); and transmitting a plurality of frames

having a plurality of protocol through said traffic engineered path in response to establishing said traffic-engineered path (Fig. 1A, element 24; paragraph [0032] paragraph [0036], paragraph [0037]. The exchange router (element 24) is associated with transmitting plurality of frames with MPLS labels including IP header fields with protocol ID identifying a plurality of protocol through traffic-engineered path in response to establishing said traffic-engineered path). At the time the invention was made it would have been obvious to a person of ordinary skill in the art to incorporate the MPLS tunnel using MPLS signaling protocols such as Resource ReserVation Setup Protocol (RSVP) as taught by Civanlar et al. into the router of Hama for establishing a virtual backbone tunnel coupled with an existing network infrastructure by receiving a request for a soft bandwidth service, the request indicating particular soft bandwidth attribute information, determining soft bandwidth availability within the network, determining an explicit soft bandwidth traffic path within the network, informing particular components of the network infrastructure of the soft bandwidth traffic path information, signaling the network to establish a virtual backbone tunnel between predetermined points in the existing network infrastructure indicated by the soft bandwidth traffic path information, and transmitting soft bandwidth data traffic relating to the requested soft bandwidth service across the virtual backbone tunnel (paragraph [0016]).

Regarding Claim 13, Hama discloses edge routers used in an MPLS network with MPLS label retaining network layer protocol for routing packets. Hama does not disclose wherein transmitting through said traffic-engineered path is bidirectional.

Civanlar et al. in the same field of endeavor discloses wherein transmitting through said traffic-engineered path is bidirectional ([paragraph [0055]). At the time the invention was made it would have been obvious to a person of ordinary skill in the art to implement MPLS tables for MPLS tunnels applicable for both directions as taught by Civanlar et al. into the router of Hama to establish a virtual backbone tunnel coupled with an existing network infrastructure by receiving a request for a soft bandwidth service, the request indicating particular soft bandwidth attribute information, determining soft bandwidth availability within the network, determining an explicit soft bandwidth traffic path within the network, informing particular components of the network infrastructure of the soft bandwidth traffic path information, signaling the network to establish a virtual backbone tunnel between predetermined points in the existing network infrastructure indicated by the soft bandwidth traffic path information, and transmitting soft bandwidth data traffic relating to the requested soft bandwidth service across the virtual backbone tunnel (paragraph [0016]).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Publication No. 2001/0016914 to Tabata relates to providing an IP-VPN which can secure a required bandwidth for each end user and can be easily interconnect to a network of the MPLS scheme.

U.S. Publication No. 2004/0258073 to Alexander et al. relates to load-sharing technique for distributing multi-protocol label switching protocol encapsulated flows across multiple physical links.

U.S. Publication No. 2004/0057424 to Kokkonen relates to communication system for transferring data packets between a network device located within a first network and a network device located within a second network where the headers of each of data packets entering first network at an ingress node are encapsulated by assigning at least one label to each data packet so that the data packets can be forwarded by each of the intermediate nodes based on the label without having to process the header information.

The above prior art are cited to further show the state of the art with respect to using multi-protocol label switching (MPLS) protocol in forwarding packets in a data communication network.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to F. Lin Khoo whose telephone number is 571-272-5508. The examiner can normally be reached on flex time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on 571-272-3134. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

WELLINGTON CHIN
SUPERVISORY PATENT EXAMINER